PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in or relating to Safety Razors

Communication from MAGAZINE REPEATING RAZOR COMPANY, a corporation organized under the laws of the State of New Jersey, one of the United States of America, of No. 230, Park Avenue, City of New York, State of New York, United States of America.

I, LEONARD MELLERSH-JACKSON, a subject of the King of Great Britain, of the firm of Haseltine, Lake & Co., Chartered Patent Agents, of 28, Southampton Buildings, Chancery Lane, London, W.C.2, in the County of Middlesex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an improved safety razor and is directed to an improved form of guard and its relation to the shaving head of the blade.

The object of the invention is to construct a guard that causes a formation of the skin surface which presents the hair squarely to the cutting edge of the blade. The skin is deformed by the pressure plus the movement of the guard across the skin to an extent that causes a pressing of the skin into a slightly convex form at the point where the blade contacts with the skin. The razor guard itself presents the section of the skin being shaved to the blade edge with the shaft of the hair extending out of the skin as far as it will go when the edge of the blade sliding over the lather lubricated skin comes in contact with the hair. In other words the action of the bar may be likened to taking the portion of the skin immediately ahead of the blade edge between the fingers and gently but firmly pressing it into a slightly convex form naturally projecting the shaft of the hair out of the cuticle as far as its roots will permit.

Another object of the invention is the provision of a guard with a certain degree of drag or friction which causes the proper passage or what might be termed "flow" of skin from the guard to the cutting edge of the blade.

A razor made according to the invention has been used and a comfortable and close shave has been secured without stretching the skin by any means in advance or in rear of the razor itself.

Safety razors as heretofore made have provided a guard for the principal purpose of preventing cutting of the skin if the razor is used with care. The surface of the guard in the former razors, where it engages the skin, has been a smooth circular bar or set of curved teeth. In one of these prior arrangements these curved teeth are shown having two radii, and in the case of one prior proposal, wherein the guard comprised no teeth, an insert of flexible material was provided having a skin engaging surface. It has also been known to provide recesses in a toothed guard to allow the hair stumps depressed by the teeth to reassume their natural position.

Accordingly the invention consists of a safety razor of the kind having means for holding a sharpened blade with a guard in advance of the blade edge wherein the guard is a solid one piece bar the skin engaging surface of which is formed of a part cylindrical leading surface and a part cylindrical trailing surface, and the leading surface of the guard has a radius approximately equal to the distance between the blade edge and a tangent point of a line tangent to said skin engaging surface and passing through the blade edge, for the purpose specified.

The invention is illustrated in the accompanying drawing in which Figure 1 is an enlarged section showing the part of the razor which comprises the guard and the blade and also indicating the normal flow of the skin surface across the guard and the edge of the blade. Figure 2 is a cross-section on a reduced scale, of the whole shaving head. Figure 3 is a front view of shaving head illustrated in Figure 2. Figure 4 is a fragmentary front view showing a modified form of surface roughening on the guard.

The razor selected for illustrating the invention is of the type that supports a blade flat on a blade platform 10. The blade is shown at 11 and it projects beyond the blade platform and is pro-

vided with a cutting edge 12.

The blade may be secured on the blade platform 10 by any suitable form of face plate but we show a face plate 13 formed of metal with a slight resiliency and including a rear plate 14 and a return bend 15. The blade platform is mounted on a supporting plate 16. The face plate member can be installed by sliding it longitudinally on the shaving head which comprises the blade platform 10 and the supporting plate 16. This makes it possible to use face plates of various lengths and angles. The face plate acts to limit the tilting of the razor on the skin to prevent the scraping incidental to the use of the blade at an obtuse angle to the skin.

The improved guard is shown at 17 and it is in the form of a bar supported by the bars 18, preferably at the ends of the bar. The guard has a rear face 19 which is nearly perpendicular to the plane of the blade. This is in conjunction with a cut-away portion 20 at the bottom of the blade platform 10 and at the front, all this allowing plenty of space for lather and hair to clear the under side of the blade. The under-cut portion 20 is preferably concave and is also of advantage in cleaning when the shaving head is reversed and placed under a tap. Water then passes into the space between the guard and blade platform and cleans the shaving head and also the under side of that part of the blade 11 that project beyond the blade platform 10. The guard bar is placed slightly below and slightly in advance of the edge 12 of the razor. It is placed in such position that a line A—B which is tangent to the effective part of the guard and passes through the cutting edge of the blade is at an approximate angle of 30° to 32° to the plane of the blade at its cutting edge. The angle is shown at C in Figure 1.

The guard bar has a leading surface 21 and a trailing surface 22. The leading surface is part cylindrical and has a relatively large radius 23 which in a razor of normal size is approximately .070 inches and over. This leading surface merges into the trailing surface 22 which latter is part cylindrical and has a relatively shorter radius 24 past the tangent point. This radius is about .025 inches and under, or less than $\frac{1}{3}$ the radius of the leading surface. The pressure of the guard against the skin surface causes an arc 25 to rise having the effect of protruding the hair out of the skin. This arc 25 flattens out somewhat when the razor is moved in shaving. These relationships and proportions are microscopic and have been arrived at after exhaustive tests and also in shaving operations. If excess pressure is placed upon the leading surface the trailing surface acts as a limitation to further deformation of the skin. With the dimensions above in mind the distance from the "tangent point" on the guard to the cutting edge is substantially .065 inches, which is approximately equal to the radius of the leading surface of the guard.

The guard has the surface which engages the skin so marked as to retard the progress of skin over the leading surface and causes a slight accumulation of skin ahead of it releasing a uniformly curved inflow of skin between the guard and the blade edge as the guard is passed over the face. This is not a stretching but a delayed release of the skin. One form of such roughening is shown by the sinuous lines or small grooves 26 shown in Figure 3. Another form is shown in Figure 4 by the knurling 27; the roughening of the surface of the guard or the use of suction pulling material is desirable. The leading surface of the guard makes it unnecessary and even undesirable to stretch a large area of skin either in advance or in rear of the razor, the stretching and releasing being confined to the immediate area between the guard and blade edge which area is to be shaved.

The razor performs best and most comfortably after the face has been lathered by simply passing it over the skin without any stretching thus giving a close and uniformly comfortable shave without abrasion, using only the hand that propels the razor.

The parts are so arranged that the flow of skin across the guard and from its release point on the guard, which is the point of deformation of the skin, to the edge of the blade is in a path to present the hair squarely to the cutting edge of the blade.

This invention is applicable to various forms of razors but we have illustrated it applied to a razor using a flat blade on a flat blade platform.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, as communicated to me by my foreign correspondents, I declare that what I claim is:—

1. A safety razor of the kind having means for holding a sharpened blade with a guard in advance of the blade edge wherein the guard is a solid one piece bar the skin engaging surface of which is formed of a part cylindrical leading surface and a part cylindrical trailing surface, and the leading surface of the guard has a radius approximately equal to the distance between the blade edge and a

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tangent point of a line tangent to said skin engaging surface and passing through the blade edge, for the purpose specified.

2. A safety razor in accordance with Claim 1, wherein the trailing surface of the guard has a radius less than one third the radius of the leading surface.

3. A safety razor in accordance with Claim 1 or 2, wherein the skin engaging surface is roughend to pull slightly on the skin when the razor is passed across the skin.

4. A safety razor constructed, arranged and adapted to operate substantially as hereinbefore described with reference to any of the figures of the accompanying drawings.

Dated this 3rd day of June, 1936.

HASELTINE LAKE & CO.,
28, Southampton Buildings, London, England, and
19—25, West 44th Street, New York, U.S.A.,
Agents for the Applicant.

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